MINISTRY OF HEALTH MALAYSIA

INSTITUT FOR HEALTH BEHAVIOURAL RESEARCH

DEVELOPMENT AND VALIDATION OF A SHORTENED DIABETES BEHAVIOUR DIAGNOSIS INSTRUMENT (DBDI) FOR TYPE 2 DIABETES: STUDY PROTOCOL

EP057



Nadia Amirudin[1], Noorhayati Kassim[1], Rosnani Kassim[1], Siti Nurhanim Mohamed Aimanan[1], Nurashma Juatan[1]

1Institute for Health Behavioural Research (IHBR), National Institutes of Health (NIH).

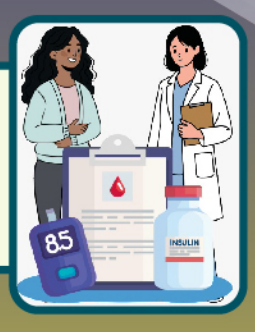
Corresponding author: nadia.amr@moh.gov.my

Introduction

Behavioural theories highlight the importance of knowledge, motivation, and practices in shaping diabetes self-care behaviours; including medication adherence, blood glucose monitoring, healthy diet, and proper foot care. Existing tools to assess these factors are often lengthy and impractical for routine use. Therefore, there is a need for a concise and user-friendly instrument to assess behavioural determinants among patients with type 2 diabetes.

Study Objective

To develop and validate a practical shortened Diabetes Behaviour Diagnosis Instrument (DBDI) for patients with type 2 diabetes using a structured study protocol.



Methodology

Study Design	Cross-sectional study
Study Setting	Government healthcare clinics in Klang and Petaling district
Study Population	Adults aged 18 years and above diagnosed with type 2 diabetes
Sample Size	500 participants
Sampling Method	Convenience sampling
Data collection	Shortened DBDI Questionnaire
Data Analysis	• Descriptive statistics • Exploratory Factor Analysis (EFA) • Reliability analysis (Cronbach's Alpha) • Face Validity & Content Validity

Conceptual Framework

The instrument is developed based on behavioural theories which is known as "Information–Motivation–Behavioral" Model. (IMB)

CONCEPTUAL MODEL OF THE SHORTENED DBDI BASED ON IMB MODEL (INFORMATION, MOTIVATION & BEHAVIOUR)

- INFORMATION
  - Diabetes knowledge
  - Self-care knowledge
- MOTIVATION
  - Social support
  - Perception
  - Social support
  - Self-care motivation
- BEHAVIOUR
  - SMBG
  - Medication compliance
  - Diet management
  - Foot care & footwear

→ Diabetes Self-Management Behaviour

Instrument Domains

DOMAIN	SUBDOMAINS	Total of items	Total of items (Original)
INFORMATION	General knowledge Self-care knowledge	15	24
MOTIVATION	Awareness Perception Social support Self-care Management	14	21
BEHAVIOUR	Self-Monitoring of Blood Glucose (SMBG) Medication compliance Diet management Foot care & footwear Physical activity	20	29

Study Flow Structure

- Study Population
  - Adults with Type 2 Diabetes
  - Attending Government Health Clinics
- Participant Recruitment
  - Eligibility Screening
  - Informed Consent
- Data Collection
  - Sociodemographic Data
  - DBDI Questionnaire
- Data Cleaning
  - Missing Data Check
  - Item Screening
- Exploratory Factor Analysis
  - Factor Loading Assessment
  - Item Reduction
- Reliability Analysis
  - Cronbach's Alpha
  - Internal Consistency
- Instrument Validation
  - Final Shortened DBDI

Expected Outcomes

The shortened DBDI may serve as a practical screening tool for healthcare providers to assess behavioural determinants influencing diabetes self-management and to design targeted behavioural interventions.

Conclusion

A shortened version of the DBDI is required to make it more user-friendly, less time-consuming to assess core behavioural domains among individuals with Type 2 Diabetes and it also aims to achieve stronger validity and reliability for each content of the items.

Acknowledgment

We would like to express our gratitude to the Director-General of Health and Deputy Director of Health (Research and Technical Support) Malaysia for allowing this presentation. We would also like to express appreciation for all the support from all parties that have contributed directly or indirectly to complete this study.

References

Hibbard, J. H., Mahoney, E. R., Stockard, J., & Tusler, M.(2005). Development and testing of a short form of the patient activation measure. Health services research, 40(6 Pt 1), 1918–1930. https://doi.org/10.1111/j.1475-6773.2005.00438.x

Magliano, D. J., & Boyko, E. J.; IDF Diabetes Atlas 10th Edition Scientific Committee. (2021). *IDF Diabetes Atlas (10th ed.)*. International Diabetes Federation. https://www.ncbi.nlm.nih.gov/books/NBK581940/

Pallant, J. (2020). SPSS Survival Manual: A step-by-step guide to data analysis using IBM SPSS (7th ed.). Routledge. https://doi.org/10.4324/9781003117452

